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In re application of: Scheller et al.	Examiner: Dowe, Katherine Marie
Serial No.: 10/820,330	Group Art Unit: 3734
Filed: April 8, 2004	
For: SURGICAL INSTRUMENT CONSTRUCTED BY ELECTRIC DISCHARGE MACHINING	

APPEAL BRIEF UNDER 37 C.F.R. § 41.37

Applicants herein present their appeal of the Final Rejection of claims 25-42, 47, 48, 51 and 52 made in the Office Action having a notification date of September 23, 2009.

(1) Real Party In Interest

The real party in interest in this Appeal is Synergetics, Inc., by way of an Assignment recorded on June 12, 2002, at Reel No. 013002 and Frame No. 0770.

(2) Related Appeals and Interferences

There are no related appeals and/or interferences.

(3) Status of Claims

Claims 25-42, 47, 48, 51 and 52 are currently pending in the application.

Claims 1-24, 43-46, 49 and 50 have been cancelled.

The Final Rejection of claims 25-42, 47, 48, 51 and 52 is being appealed herein.

(4) Status of Amendments

No amendments have been filed in the application following the Final Rejection of claims 25-42, 47, 48, 51 and 52, having a notification date of September 23, 2009.

(5) Summary of Claimed Subject Matter

The subject matter of the invention defined by independent claim 25 is a microsurgical instrument 10 (specification page 1, line 3-page 2, line 13) having first 106, 114, 170, 192 and second 112, 194 operative microsurgical surfaces (specification page 12, line 30-page 13, line 11; page 15, lines 7-12; and page 17, lines 15-17). Means 14 are provided for manually moving the first and second operative microsurgical surfaces toward and away from each other (specification page 11, line 8-page 12, line 11). At least one of the operative microsurgical surfaces has a series of serrations 116, 172, 208 (specification page 12, lines 26-32 and page 15, lines 7-12). Each serration has adjacent peaks and a width dimension between the adjacent peaks that is smaller than 0.007 of an inch (specification page 17, lines 22-29).

The subject matter of the invention defined by independent claim 47 is a microsurgical instrument 10 (specification page 1, line 3-page 2, line 13) that is comprised of an elongate rod 176 having opposite proximal 178 and distal 180 ends (specification page 16, lines 19-21). A

slot 202 is provided in the rod distal end 180 and forms a pair of resilient spring arms 90, 92 projecting from the rod 176 (specification page 12, lines 15-20 and page 17, lines 6-12). A pair of opposed, operative microsurgical surfaces 192, 194 is provided on the pair of spring arms 90, 92 (specification page 17, lines 3-14). The slot 202, the pair of spring arms 90, 92 and the pair of operative microsurgical surfaces 192, 194 have been formed by electric discharge machining in a single piece of material (specification page 16, lines 17-22 and page 18, lines 17-20). The pair of operative microsurgical surfaces 192, 194 are a pair of forceps jaws (specification page 17, lines 15-17). The pair of forceps jaws have opposed serrated surfaces 208 (specification page 17, lines 15-21). The serrated surfaces 208 have serrations with adjacent peaks and width dimensions between the adjacent peaks of the serrations that are smaller than 0.007 of an inch (specification page 17, lines 18-29).

The subject matter of the invention defined by independent claim 51 is a microsurgical instrument 10 (specification page 1, line 3-page 2, line 13) that is comprised of an elongate rod 76, 84 having opposite proximal and distal ends (specification page 12, lines 10-15) with a slot 88 in the rod distal end forming a pair of resilient spring arms 90, 92 projecting from the rod (specification page 12, lines 15-20). A pair of opposed, operative microsurgical surfaces 106, 114, 112 are provided on the pair of spring arms 90, 92 (specification page 12, line 30-page 13, line 11). The slot 88, the pair of spring arms 90, 92, and the pair of operative microsurgical surfaces 106, 114, 112 have been formed by electric discharge machining in a single piece of material (specification page 13, lines 14-18). The pair of operative microsurgical surfaces are a pair of scissor blades 94, 96 (specification page 12, lines 16-20). The pair of scissor blades have opposed serrated edges 116, 118 (specification page 12, line 30-page 13, line 11). The serrated edges 112, 118 have serrations with adjacent peaks and width dimensions between the adjacent peaks of the serrations that are smaller than 0.007 of an inch (specification page 17, lines 22-29).

(6) Grounds of rejection to be reviewed on Appeal

The grounds of rejection to be reviewed on appeal is the obviousness rejection of claims 25-42, 47, 48, 51 and 52 under 35 U.S.C. § 103(a) in view of the disclosures of the U.S. Patent of Toth et al. No. 6,616,683 and the U.S. Patent of Specht et al. No. 4,938,214.

(7) Argument

Claims 25-42, 47, 48, 51 and 52 have been rejected as being obvious in view of the U.S. Patent of Toth et al. No. 6,616,683 and the U.S. Patent of Specht et al. No. 4,938,214. Claims 25, 47 and 51 are the only independent claims.

Each of the independent claims is directed to a microsurgical instrument. Microsurgical instruments are employed in performing surgical operations on extremely small and extremely delicate parts of the human anatomy, for example, the tissue inside the human eye. It is necessary that the scale of these instruments be as small as possible so that the introduction of an instrument to a surgical site is minimally invasive.

The applicants have discovered that a microsurgical instrument having a serrated operative microsurgical surface can be created by using electric discharge machining (EDM) to make the extremely small serrations on the operative surfaces of the instrument. In the preferred embodiment of the invention, each serration on an operative surface of the invention has adjacent peaks and a width dimension between the adjacent peaks that is smaller than 0.007 of an inch, the smallest serration known by the applicants that can be formed by the conventional grinding process. In addition, the applicants have discovered that no further machining of the extremely small serrations (for example grinding the serrations) would be needed after the operative microsurgical surfaces were formed by EDM alone. These discoveries of the applicants are not disclosed or made obvious by the prior art references of record in the application.

Each of the independent claims 25, 47, and 51 recites a microsurgical instrument comprising first and second operative microsurgical surfaces that are manually movable toward and away from each other, where at least one of the operative microsurgical surfaces has a series of serrations and each serration has adjacent peaks and a width dimension between the adjacent peaks that is smaller than 0.007 of an inch.

In the final rejection of the claims, it is contended that the Toth reference discloses a microsurgical instrument having a distal end with a slot in the distal end that forms a pair of resilient spring arms having opposed microsurgical surfaces on the spring arms. It is further contended that the slot, the pair of spring arms, and the pair of operative microsurgical surfaces are formed by electric discharge machining in a single piece of material, as is recited in the rejected independent claims.

The above interpretation of the Toth reference is incorrect. The reference does not disclose or suggest operative microsurgical surfaces that are formed solely by electric discharge machining. This interpretation of the reference is based on hindsight of the present invention.

> The Patent Office has the initial duty of supplying a factual basis for a rejection under 35 U.S.C. § 103. It may not, because it may doubt that the invention is patentable, resort to speculation, unfounded assumptions or hindsight reconstruction to supply deficiencies in its factual basis.

Application of Rice, 481 F.2d 1316, 178 U.S.P.Q. 478, 479 (CCPA 1973).

> To imbue one of ordinary skill in the art with knowledge of the invention in suit, when no prior art reference or references of record convey or suggest that knowledge, is to fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher.

WL Gore & Associates, Inc. v. Garlock, Inc., 721 F.2d 1540, 220 U.S.P.Q. 303 (Fed. Cir. 1983).

The Toth reference discloses cutting a slot in the distal end of a tubular member to form forcep jaws 14-2 that have arcuate cross-sections (column 3, lines 8-11). The forcep jaws 14-2 are further bent in a V-shape that provides a seat on each jaw for a filler material 14-4 which

forms the gripping surface of the forcep jaw (see column 3, lines 11-16). It is the filler material 14-4 that provides the operative surface of the forceps in the Toth reference.

The Toth reference includes one sentence that states the filler material may be omitted from the forcep jaws 14-2 (column 4, lines 26-27). From this the Examiner concludes that "the operative microsurgical surfaces (14") may be interpreted as being formed solely by electric discharge machining." However, the reference has no disclosure of microsurgical surfaces being formed by electric discharge machining as contended in the rejection of the claims. The reference does disclose that after the EDM techniques, the "resulting opposed cross-sectionally arcuate jaw sections may be bent and/or further shaped to achieve the desired final jaw configuration" (see column 1, lines 62-64). This teaches away from the invention.

> It is impermissible within the framework of 35 U.S.C. § 103 to pick and choose from any one reference only so much of it as will support a given position to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one skilled in the art.

Bausch & Lomb, Inc. v. Barnes-Hind/Hydrocurve, Inc., 796 F.2d 443, 230 U.S.P.Q. 416 (Fed. Cir. 1986).

Furthermore, the Toth reference fails to provide any disclosure or suggestion of serrations on an operative surface of a microsurgical instrument where each serration has adjacent peaks with a width dimension between the adjacent peaks that is smaller than 0.007 of an inch as recited in the three independent claims 25, 47, and 51. For the above reasons, the Toth reference does not make obvious the subject matter of the independent claims either alone or in combination with the Specht reference.

The above shortcomings of the Toth reference are at least in part acknowledged in the rejection of the claims where it is said "Toth et al. do not disclose operative microsurgical surfaces comprise serrations." The Specht reference is relied on for such a disclosure. However, the Specht reference only discloses that serrations on a microsurgical tool are known. The reference does not disclose serrations on an operative surface of a microsurgical

instrument where each serration has adjacent peaks with a width dimension between the adjacent peaks that is smaller than 0.007 of an inch as recited in independent claims 25, 47, and 51.

The claims of the application are directed to the novel and non-obvious discovery that operative microsurgical surfaces of a microsurgical instrument can be formed by electric discharge machining (EDM) to have serrations where each serration has adjacent peaks with a width dimension between the adjacent peaks that is smaller than 0.007 of an inch. This discovery of the applicants is not made obvious by the combined disclosures of the Toth and Specht references, and therefore claim 25 and its dependent claims 26-42, claim 47 and its dependent claim 48, and claim 51 and its dependent claim 52 are all allowable over the prior art.

In the "Response to Arguments" section of the Final Rejection of the claims, the argument is presented that it would be obvious to form serrations where the width between adjacent peaks of the serrations was within a range of 0.0015 to 0.0039 of an inch, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering optimum or working ranges involves only routine skill in the art. *In Re Aller*, 105 U.S.P.Q. 233 was relied on for this contention. However, the holding of *In Re Aller* is taken out of context in the rejection.

MPEP § 2144.05 addresses the issue of obviousness of ranges. Part II, A of this MPEP section deals with optimization within prior art conditions. There *In Re Aller* is cited as supporting the contention that where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.

This is not the case in the claimed subject matter of the invention. The claims are not directed to the optimum size of serrations within a known range of serration sizes. The claims recite serrations having adjacent peaks with a width dimension between the adjacent peaks that is smaller than 0.007 of an inch. This small dimension claimed is outside of any range of

serration dimensions disclosed in the prior art of record. Therefore, *In Re Aller* provides no support for the contention that the subject matter of the claims of the invention is obvious in view of the combined disclosures of the Toth and Specht references.

For all the reasons discussed above, it is respectfully submitted that claims 25-42, 47, 48, 51, and 52 currently pending in the application are allowable over the prior art.

In the rejection of dependent claims 28, 48, and 52, MPEP § 2113 is cited for the contention that product-by-process limitations are not limited to the manipulations of the recited steps, only to the structure implied by the steps. Once a product appearing to be substantially the same or similar is found, a 35 U.S.C. § 102/103 rejection may be made and the burden is shifted to the applicant to show an unobvious difference.

Dependent claims 28, 48, and 52 do not refer to manipulations of steps. These claims recite specific structure of the microsurgical instrument operative surfaces. Claim 28 refers to the serrations being wire electric discharge machined surfaces. Claim 48 refers to the opposed serrated surfaces having been formed solely by electric discharge machining. Claim 52 recites substantially the same subject matter of claim 48 where it defines the serrated edges having been formed solely by electric discharge machining. The claims are not describing method steps, but are describing how the serrated edges had been formed. Serrated edges formed solely by electric discharge machining are different and not obvious from edges formed by grinding.

For all the reasons discussed above, it is submitted that the dependent claims 28, 48, and 52 recite structural features of the invention that are not obvious from the prior art method of grinding operative surfaces of microsurgical instruments.

(8) Claims Appendix

25. A microsurgical instrument comprising:

first and second operative microsurgical surfaces;

means for manually moving the first and second operative microsurgical surfaces toward and away from each other; and

at least one of the operative microsurgical surfaces having a series of serrations and each serration having adjacent peaks and a width dimension between the adjacent peaks that is smaller than 0.007 of an inch.

26. The microsurgical instrument of Claim 25, further comprising:

each serration having a width dimension between the adjacent peaks of at most 0.0039 of an inch.

27. The microsurgical instrument of Claim 25, further comprising:

each serration having a width dimension between the adjacent peaks in the range of 0.0015 of an inch to 0.0039 of an inch.

28. The microsurgical surgical instrument of Claim 25, further comprising:

the series of serrations being a wire electric discharge machined surface.

29. The microsurgical instrument of Claim 25, further comprising:

the first and second operative microsurgical surfaces being on a pair of opposed forcep jaws.

30. The microsurgical instrument of Claim 29, further comprising:

the pair of forcep jaws being connected to an elongate rod with the pair of forcep jaws projecting from a distal end of the rod.

31. The microsurgical instrument of Claim 30, further comprising:

the pair of forcep jaws and the rod being formed from a single piece of material.

32. The microsurgical instrument of Claim 30, further comprising:

a slot formed into the rod at the rod distal end, the slot separating the pair of forcep jaws.

33. The microsurgical instrument of Claim 30, further comprising:

the pair of forcep jaws having been formed by wire electric discharge machining.

34. The microsurgical instrument of Claim 30, further comprising:

the pair of forcep jaws having been formed solely by wire electric discharge machining.

35. The microsurgical instrument of Claim 30, further comprising:

a slot formed in the rod at the rod distal end, the slot forming a pair of resilient spring arms at the rod distal end that connect the pair of forcep jaws to the rod.

36. The microsurgical instrument of Claim 25, further comprising:

the first and second operative microsurgical surfaces being on a pair of opposed scissor blades.

37. The microsurgical instrument of Claim 36, further comprising:

the pair of scissor blades being connected to an elongate rod with the pair of scissor blades projecting from a distal end of the rod.

38. The microsurgical instrument of Claim 37, further comprising:

the pair of scissor blades and the rod being formed from a single piece of material.

39. The microsurgical instrument of Claim 37, further comprising:

a slot formed in the rod at the rod distal end, the slot separating the pair of scissor blades.

40. The microsurgical instrument of Claim 37, further comprising:

the pair of scissor blades having been formed by wire electric discharge machining.

41. The microsurgical instrument of Claim 37, further comprising:

the pair of scissor blades having been formed solely by wire electric discharge machining.

42. The microsurgical instrument of Claim 37, further comprising:

a slot formed in the rod at the rod distal end, the slot forming a pair of resilient spring arms at the rod distal end that connect the pair of scissor blades to the rod.

47. A microsurgical instrument comprising:

an elongate rod having opposite proximal and distal ends;

a slot in the rod distal end forming a pair of resilient spring arms projecting from the rod;

a pair of opposed, operative microsurgical surfaces on the pair of spring arms;

the slot, the pair of spring arms, and the pair of operative microsurgical surfaces having been formed by electric discharge machining in a single piece of material;

the pair of operative microsurgical surfaces being a pair of forcep jaws;

the pair of forcep jaws having opposed serrated surfaces; and,

the serrated surfaces having serrations with adjacent peaks and width dimensions between the adjacent peaks of the serrations that are smaller than 0.007 of an inch.

48. The microsurgical instrument of Claim 47, further comprising:

the pair of forcep jaws opposed serrated surfaces having been formed solely by electric discharge machining.

51. A microsurgical instrument comprising:

an elongate rod having opposite proximal and distal ends;

a slot in the rod distal end forming a pair of resilient spring arms projecting from the rod;

a pair of opposed, operative microsurgical surfaces on the pair of spring arms;

the slot, the pair of spring arms, and the pair of operative microsurgical surfaces having been formed by electric discharge machining in a single piece of material;

the pair of operative microsurgical surfaces being a pair of scissor blades;

the pair of scissor blades having opposed serrated edges; and,

the serrated edges having serrations with adjacent peaks and width dimensions between the adjacent peaks of the serrations that are smaller than 0.007 of an inch.

52. The microsurgical instrument of Claim 51, further comprising:

the pair of scissor blades opposed serrated edges having been formed solely by electric discharge machining.

(9) Evidence Appendix

None.

(10) Related Proceedings Appendix

None.

It is respectfully submitted that for the reasons set forth herein, the Final Rejection of claims 25-42, 47, 48, 51 and 52 should be reversed and the claims allowed.

Respectfully submitted,

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